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Desert Tortoise Habitat Management

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Director's Preface

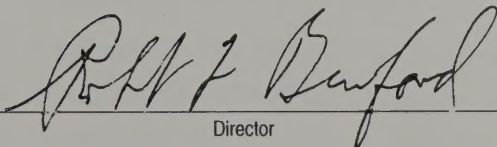
Because the desert tortoise occurs largely on lands administered by the U.S. Bureau of Land Management, Bureau managers and staff specialists have a unique opportunity to manage habitat so as to ensure that viable populations of this species exist in perpetuity. Building on past and ongoing accomplishments that benefit desert tortoises and their habitats, we intend to focus on this opportunity in a new and important Bureau initiative outlined in the following Desert Tortoise Rangewide Plan.

A year ago, through endorsement of the 1987 Desert Tortoise Habitat Team report, I issued a directive to BLM staff in Arizona, California, Nevada, and Utah to develop strategies to begin implementation of the recommendations in that report. The result of their effort was this Rangewide Plan which provides Goals, Objectives, and Management Actions to be used by Bureau managers to improve the status of the desert tortoise. The Plan also formalizes several coordination mechanisms to ensure effective planning and decision making whenever and wherever the desert tortoise is involved.

In the BLM we are obligated to operate within the provisions of the Federal Land Policy and Management Act which mandates a multiple-use/ sustained yield approach to managing and using renewable and nonrenewable public land resources. In this process there is ample opportunity to implement the Management Actions presented in the Rangewide Plan which collectively provide a measure of our resolve to improve the status of the desert tortoise and its habitat. Here are a few examples:

- Complete and maintain an inventory of tortoise populations and habitats;
- Develop a system to track desert tortoise habitat quantity and quality through time to allow analysis of cumulative impacts;
- Participate fully on a management oversight group and all technical committees and coordination groups actively considering tortoise issues;
- Implement research and studies to resolve tortoise management issues;
- Manage tortoise habitats using an ecosystem management approach with emphasis on maintaining or restoring natural biological diversity; and
- Where practicable, allow no net loss in quantity or quality of important desert tortoise habitats.

In translating these action statements into on-the-ground accomplishments, we in the Bureau solicit the help of all individuals, groups, and agencies. For the new initiative to work effectively, cooperative thought, work, and funding will be vital. Simply put, the initiative is the Bureau's, but the responsibility is shared by all who wish to conserve the tortoise and all who wish to develop land and use resources within the range of the desert tortoise!



Director

November 14, 1988

Date

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Executive Summary

The purpose of this Rangewide Plan is to implement the recommendations contained in the BLM report entitled "Management of Desert Tortoise Habitat." The BLM Director approved that Habitat Team report and its overall tortoise management Goal on October 15, 1987. This Goal is: "...to manage habitat so as to ensure that viable desert tortoise populations exist on public lands. This will be accomplished through cooperative resource management aimed at protecting the species and its habitat."

Most tortoise habitat exists on the public lands. It is the Bureau's responsibility to manage this resource pursuant to the Federal Land Policy and Management Act, the Bureau's multiple-use/sustained-yield mandate. Established policies and procedures for wildlife inventory, planning, environmental assessment, monitoring, interagency coordination and cooperation, and research and studies allow appropriate consideration of desert tortoises and their habitats in the Bureau's land-use planning and decision-making processes. This Rangewide Plan also provides Objectives and Management Actions derived from these policies and procedures to be used by the Bureau to improve the status of the tortoise and its habitat.

Recent studies on the genetics and morphometrics of desert tortoises describe three main populations in the United States: Sonoran Desert, Western Mojave Desert, and Eastern Mojave Desert populations (Map 1). Each of these populations have different shell shapes, occur in different habitat types, have differing behavioral patterns, and are affected by particular surface disturbing activities to varying degrees. Management for viable populations of each of these genetic/morphometric types is necessary.

One management strategy for providing future protection and management of desert tortoise habitat will be to categorize tortoise Habitat Areas according to four criteria: (1) importance of the habitat to maintaining viable populations, (2) resolvability of conflicts, (3) tortoise density, and (4) population status (stable, increasing, decreasing). Differing levels of management, consistent with Category Goals, will be applied to Habitat Areas in each Category (Table 1). The Bureau is committed to maintaining viable tortoise populations in Category I and II habitats through implementation of specific Management Actions. The placing of an area of habitat in Category III means that these areas are of lower value in sustaining viable populations of tortoises on the public lands, and thus

can be subjected to lower management intensity specifically for tortoises than habitats in the other Categories.

Management Actions are grouped under fourteen Management Objectives. These Management Objectives and accompanying Management Actions represent "where the Bureau intends to go" during the coming decade to meet the Bureau's overall Goal for preserving and managing tortoises and their habitats.

Objective 1. Develop increased awareness of tortoise resources on the public lands.

Objective 2. Complete and maintain on a continuing basis an inventory and monitoring program for tortoise populations and habitats to assist in making management decisions on the public lands.

Objective 3. Develop and maintain a monitoring program specifically for land-use activities that adversely affect tortoise habitats. This program will be used in the analysis of and response to the cumulative impacts of land-use decisions on tortoise habitats.

Objective 4. Comply fully with the Endangered Species Act of 1973, as amended, as it relates to tortoise population and habitat management on the public lands.

Objective 5. Develop and maintain effective coordination and cooperation with outside agencies and Bureau constituents concerning tortoise population and habitat management.

Objective 6. Conduct research and studies sufficient to develop and document the knowledge and techniques needed to ensure the viability of tortoise populations and habitats in perpetuity.

Objective 7. Manage the public lands, on a continuing basis, to protect the scientific, ecological, and environmental quality of tortoise habitats consistent with the Category Goals and other Objectives of this

Rangewide Plan. This implies management for the existence of an adequate number of healthy and vigorous tortoise populations of sufficient size and resilience to withstand the most severe environmental impacts, and with appropriate sex and age ratios and recruitment rates to maintain viable populations in perpetuity.

Objective 8. When the need is identified through the Bureau planning system, acquire and/or consolidate, under Bureau administration, management units with high tortoise habitat values, and mitigate the effects of issuing rights-of-way across public lands.

Objective 9. Ensure that off-highway vehicle use in desert tortoise habitats is consistent with the Category Goals, Objectives, and Management Actions of this Rangewide Plan.

Objective 10. Ensure that livestock use is consistent with the Category Goals, Objectives, and Management Actions of this Rangewide Plan. This may include limiting, precluding, or deferring livestock use as documented in site-specific plans.

Objective 11. Provide for herd management for wild horses and burros which is consistent with the Category Goals, Objectives, and Management Actions of this Rangewide Plan. This may include limiting or precluding wild horse and/or burro use, as appropriate.

Objective 12. Provide for management of wildlife other than desert tortoises on the public lands consistent with the Category Goals, Objectives, and Management Actions of this Rangewide Plan.

Objective 13. Cooperate with state wildlife agencies and Animal & Plant Health Inspection Service (APHIS) to effect appropriate types and levels of predator control to meet the Category Goals and Objectives of this Rangewide Plan. This will be considered only where predation is interfering with maintaining viable tortoise populations.

Objective 14. Manage the Bureau's energy and minerals program in a manner consistent with the Category Goals and Objectives of this Rangewide Plan.

Introduction and Purpose

The desert tortoise (*Xerobates agassizii*) is one of the most politically sensitive animals with which Federal agencies must be concerned, because tortoises are particularly susceptible to surface-disturbing activities. Normal tortoise populations are characterized by a long period to reproductive maturity, low reproductive output, and low survival of young. These characteristics, which portend an inability to adapt to rapid environmental changes, have led to widespread Bureau of Land Management (BLM) and public recognition of the need to manage tortoise populations and habitats effectively.

Bureau authorities exist through which protection and conservation of tortoises and their habitats can be implemented, particularly if cooperation and assistance is provided by state, county, and other Federal agencies, as well as private landowners, where mixed ownership is a major problem. Many of these authorities have been applied by the Bureau to address tortoise habitat management issues with varying degrees of intensity and success. Other authorities and many important management opportunities remain to be implemented.

The popular appeal of tortoises and their susceptibility to urban encroachment, agricultural development, off-highway vehicle use, livestock grazing, and mining continue to place extreme demands on some wild populations. The results have been that many tortoise populations have declined; local extirpations have occurred; and other populations are no longer viable. Declining habitat quantity and quality are major causes of these conditions, and aggressive conservation and management programs are needed to counter the negative forces acting against tortoises and their habitats.

Recognizing these declines, the U.S. Fish and Wildlife Service (FWS) officially listed tortoises on the Beaver Dam slope of Utah as threatened and classified the desert tortoise elsewhere as a candidate for Federal listing. Bureau policy requires that habitats of Federal candidate species be managed and/or conserved to ensure that BLM actions do not contribute to the need to list the species. In 1985 the FWS determined that the desert tortoise warranted final Federal

listing as a species, but the listing proposal was set aside because of other higher priorities in the FWS.

The purpose of this Rangewide Plan is to implement the recommendations contained in the BLM report entitled "Management of Desert Tortoise Habitat." That 1987 report was prepared by a Tortoise Habitat Team consisting of representatives of several BLM State, District, and Area Offices and the Nevada Department of Wildlife. The BLM Director approved the Habitat Team report and its overall tortoise management Goal on October 15, 1987. This Goal is: "...to manage habitat so as to ensure that viable desert tortoise populations exist on public lands. This will be accomplished through cooperative resource management aimed at protecting the species and its habitat."

Further, this Rangewide Plan was prepared to provide Objectives and Management Actions to be used by the Bureau to improve the status of the tortoise on the public lands, including efficient planning and research, cost effective on-the-ground implementation of plans and research recommendations, and appropriate awareness of the species in the land-use planning and decision-making processes relating to other public land resources. It is also the intent of the BLM to coordinate and cooperate with interested publics and constituents, state wildlife agencies, and other Federal agencies in implementing on-the-ground tortoise habitat Management Actions.

There are also a few things this Rangewide Plan is not intended to do. It does not address site-specific, population-specific, or individual on-the-ground management actions. These are being or will be developed in individual site-specific activity plans, such as Habitat Management Plans for wildlife, Allotment Management Plans for livestock, Area of Critical Environmental Concern Management Plans for special areas, etc. Development of proposals for budget and work effort required to implement this Rangewide Plan are ongoing through the normal annual work planning process and will be developed further following completion of state-level desert tortoise habitat management implementation strategies/plans. National Environmental Policy Act compliance will occur when individual actions are proposed.

Background

Inherent in the Bureau's authorities is a mandate to which the Bureau strives in its wildlife programs. The Federal Land Policy and Management Act of 1976 (FLPMA) formalizes the principles of multiple use and sustained yield as a Bureau mission. Wildlife is identified as one of the principal or major uses of the public lands. The management and preservation of wildlife as a principal multiple use results in a goal of maintenance of habitat diversity. In fact, the habitat diversity present on the public lands administered by the BLM exceeds that of any other landowner in the Nation—governmental or private. High diversity and low human disturbance within habitats generally yield healthy wildlife populations. Such populations offer more management options for maintenance or improvement of their well-being than do threatened or endangered species for which stringent management strategies necessary for recovery diminish available options. Thus, the identification and maintenance of management options for conservation of nonlisted species is of benefit not only to the Bureau, but also to wildlife in general, desert tortoises included.

Authority

The past decade has seen great changes in the attitudes of the American public towards the lands the BLM administers under its multiple-use and sustained-yield mandate, FLPMA. These changes have resulted in improved management of the natural resources on the public lands, including the wildlife resources. The vast expanses of prairie, deserts, mountains, and forests, as well as special habitats (floodplains, islands, cliffs, and rock outcrops) provide shelter and food for both huntable and nongame wildlife, furnish reproductive sites and nourishment for hundreds of species of wildlife, and fascinate those people who enjoy open space and natural settings.

Indeed, most tortoise habitat exists on the public lands, and therein lies the essence of the Bureau's responsibility to this resource as set forth in FLPMA:

The Congress declares that it is the policy of the United States that...management be on the basis of multiple use and sustained yield unless otherwise specified by law; the public lands be managed in a manner that will protect the quality of scientific, scenic, historical, eco-

logical, environmental, air and atmosphere, water resource, and archaeological values; that, where appropriate, will preserve and protect certain public lands in their natural condition; that will provide food and habitat for fish and wildlife and domestic animals; and that will provide for outdoor recreation and human occupancy and use...

The Secretary shall prepare and maintain on a continuing basis an inventory of all public lands and their resource and other values...

In the development and revision of land use plans, the Secretary shall —

give priority to the designation and protection of areas of critical environmental concern;

consider the relative scarcity of the values involved...; and

coordinate the land use inventory, planning, and management activities of or for such lands with the land use planning and management programs of other Federal departments and agencies and of States and local governments within which the lands are located...

The principal wildlife management responsibility of the BLM is for habitat. State wildlife agencies and the FWS have responsibility for species management, though the two responsibilities cannot—and need not!—be separated completely, particularly in light of the Bureau's responsibility for recovery of species under the Endangered Species Act of 1973 and recent U.S. Supreme Court decisions regarding the authority of the Federal Government over wildlife on Federal lands.

BLM Procedures and Policies Relating to Wildlife Habitat

The following is a discussion of how the Bureau manages wildlife in general, tortoise habitat included. The Bureau has not made full use of these processes to manage and protect tortoises and their habitats in the

past, but the current high intensity desert tortoise initiative is a positive prospect for the future.

A. Inventory. It is Bureau policy that wildlife inventories be conducted to provide information needed for the management of BLM-administered lands. Inventories are done in response to Bureau planning efforts or as part of the environmental work (National Environmental Policy Act or NEPA compliance) associated with specific projects. Through these means, and through monitoring and research, the Bureau has amassed large quantities of information on wildlife populations and habitats—and it will continue to do so.

B. Planning. The optimal long-term process for BLM consideration of tortoise populations and habitats is the Bureau Planning System. Bureau plans are prepared in direct compliance with FLPMA and are based in part on the continuing inventory mandated by that law. Land-use plans are developed to clearly identify means of protecting wildlife habitat and other resources. Appropriate considerations are made during development and analysis of alternatives. These analyses lead to formal Resource Management Plan recommendations. Older Management Framework Plans are currently being replaced by new generation Resource Management Plans.

Bureau planning policy includes application of the principle of multiple use/sustained yield; use of a systematic interdisciplinary approach to achieve integrated consideration of physical, biological, economic, social, and environmental aspects of public land management; giving priority to identification, designation, protection, and management of Areas of Critical Environmental Concern (ACECs); considering the relative scarcity of the values involved; weighing the long-term benefits and detriments against short-term benefits and detriments; and extensive coordination with other Federal departments and agencies, state and local governments, academia and special interest groups, and Indian tribes.

Site-specific activity plans, such as Habitat Management Plans for wildlife, Allotment Management Plans for grazing practices, and Recreation Management Plans for recreation programs, are prepared to implement Resource Management Plans (land-use plans) in particular areas. It is important to note that in many cases wildlife needs can be considered and met as components of nonwildlife activity plans. Examples would include livestock management practices which can reduce competition for forage or decrease

the occurrence of trampling of tortoises in certain areas; off-highway vehicle restrictions which might decrease the access to important tortoise habitats; and the design and siting of campgrounds away from vulnerable tortoise populations.

This Rangewide Plan will become part of the routine procedures for the multiple-use management of public lands by the BLM. As such it will be part of the guidance used to develop alternatives addressed in land-use plans and will be carried through the planning process and become a part of the selected alternatives.

C. Environmental Assessment. The Bureau Planning System requires continual updating to remain current and to gain greater specificity. Updating is accomplished at least in part through implementation of the Bureau policy to ensure that Bureau planning and NEPA compliance efforts are integrated. These processes provide a clear and logical progression from planning through accomplishment, thereby avoiding duplication of effort to the extent possible. It is through the development of NEPA documents and implementation of decisions resulting from them that the project-by-project efforts to manage and protect wildlife and wildlife habitats on the public lands are accomplished.

In the absence of complete planning system data and documents, the Bureau often has an immediate need for better information with which to make project-specific recommendations. Additional inventory is often needed to develop wildlife habitat stipulations included in environmental compliance documents (environmental assessments, impact statements, impact reports, etc.) required by NEPA, similar state laws, and the associated regulations (e.g., 40 CFR Parts 1500-1508). Gathering data for environmental documents does not, however, yield all necessary information, such as trend data.

D. Monitoring. It is Bureau policy to implement monitoring activities that reflect a long-term commitment to the management of renewable resources and that will assist in the evaluation of the cumulative impacts of implementing land-use plans and records of decision. BLM monitoring for the benefit of wildlife occurs in five forms: (1) monitoring to determine population trends; (2) monitoring to determine habitat trends; (3) monitoring of actions called for in Habitat Management Plans and other activity plans; (4) monitoring compliance with stipulations contained in Bureau decision documents; and (5) monitoring to determine if mitigation measures are effective.

Interagency Coordination and Cooperation

Coordination and cooperation are very important attributes of the Bureau's program to manage and conserve wildlife and wildlife habitats. Such coordination and cooperation will be accomplished primarily through compliance with the Federal Land Policy and Management Act (see above); the Endangered Species Act of 1973, as amended; the Sikes Act; national level interagency cooperative agreements; BLM/state intergovernmental memoranda of understanding; Coordinated Resource Management Planning; various other Federal environmental and wildlife laws; where enacted, similar State legislation; etc. Several specifically focused management and technical committees will also be vital to coordination of and cooperation on tortoise issues.

A. Tortoise Management Committee Structure. As recommended in the 1987 Habitat Team report, a structure for desert tortoise committees has been established. The Desert Tortoise Management Oversight Group was established to include management level representatives from U.S. Fish and Wildlife Service Regions 1, 2, and 6; BLM offices from each of the four involved states; the four involved state wildlife agencies; and the BLM Washington Office. This Group is charged with providing a strong leadership role for implementation of this plan, as well as ensuring that data analysis procedures are standardized, considering funding and research priorities, ensuring that various reports are prepared, and reviewing existing and new laws and plans relating to tortoises.

A second group of autonomous state-level Desert Tortoise Technical Committees exists (or will be established) including representatives from agencies, organizations, and groups with special knowledge of tortoises and their habitats. One of the purposes of these Technical Committees should be to advise and put issues before BLM managers and/or the Management Oversight Group for their consideration. These Committees may also be asked to develop strategy documents for the consideration of BLM State Directors in each of the four states. Such documents should be designed to ensure that the overall Bureau desert tortoise management Goal is reached through the implementation of the Objectives of this Rangewide Plan.

Finally, as necessary, special work groups, coordination committees, advisory groups, or task forces will

be established to deal with specific tortoise issues. These groups may be established by involved agencies, the Management Oversight Group, or the Technical Committees, as appropriate.

B. Implementation of the Sikes Act. Most of the Bureau's Habitat Management Plans are developed under the umbrella of the Sikes Act, Title 2—Conservation Programs on Certain Public Land. Strong BLM/state wildlife agency cooperation is mandatory for all Sikes Act Habitat Management Plans:

The Secretary of the Interior...shall, in cooperation with the State agencies..., plan, develop, maintain, and coordinate programs for the conservation and rehabilitation of wildlife, fish, and game...

Each State may enter into a cooperative agreement with...the Secretary of the Interior with respect to those conservation and rehabilitation programs to be implemented under this title within the State on public land which is under his jurisdiction...

Each cooperative agreement entered into under this subsection shall...provide for fish and wildlife habitat improvements or modifications, or both; provide for range rehabilitation where necessary for support of wildlife; provide adequate protection for fish and wildlife officially classified as threatened or endangered pursuant to section 4 of the Endangered Species Act of 1973...or considered to be threatened, rare or endangered by the state agency; (and) require the control of off-highway vehicle traffic...

These statements from the Sikes Act have been incorporated as Bureau policy. All Habitat Management Plans are to be prepared under the Sikes Act authority unless the state wildlife agency chooses not to participate.

Research, Development, and Studies

The Bureau has been a leader in tortoise population and habitat management research, study, and informa-

tion transfer for over a decade. The BLM has conducted dozens of tortoise research projects, studies, and inventories spanning everything from the intensive research necessary to establish basic life history parameters for the species to very specialized studies of desert tortoise foraging habits and movement patterns. Much more needs to be done, however.

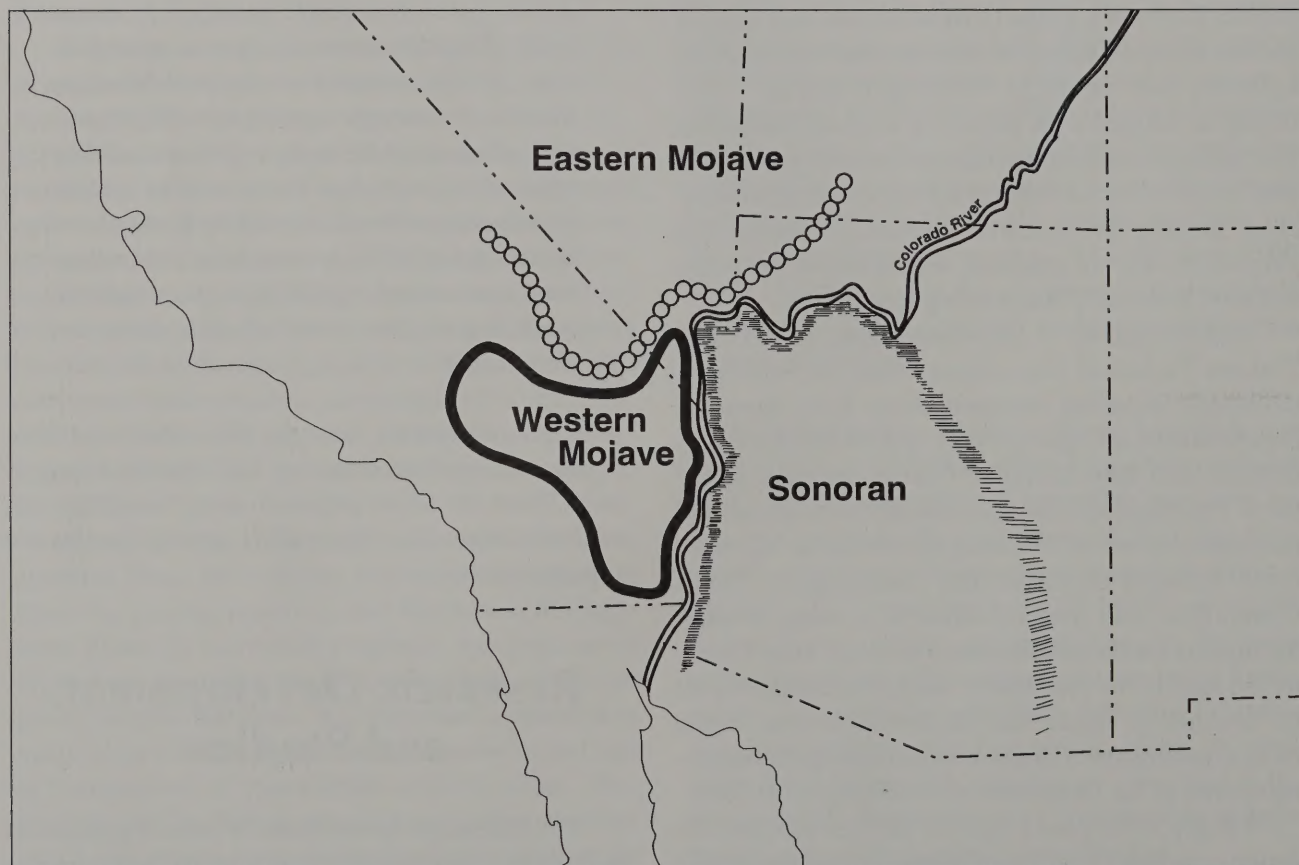
A. Research and Development. BLM research and development policy states that such projects shall be user-oriented (applied) and necessary to provide program (management) direction. Research needs of the Bureau are identified in Statements of Need prepared by field office staffs, primarily Resource Area and District Offices and the Denver Service Center. These statements are reviewed at higher levels, and authorizations to develop Project Prospectuses (proposals) are given, as appropriate. Approved research and development projects are conducted and evaluated, data are analyzed, and reports are written and distributed.

B. Studies. While not generally considered R&D by the Bureau, studies account for much of the Bureau's initial information gathering effort for the benefit of

tortoises and their habitats. Studies are distinguished from research projects as being short-termed, small in scope, site specific, and directly applicable to immediate management needs.

Current Tortoise Population and Habitat Status

Recent studies on the genetics and morphometrics of desert tortoises provide important information for management of the species. Data from mtDNA research indicate that at least two major genetic assemblages exist in the United States, separated by the Grand Canyon-Colorado River system (Map 1). These two groups, separated for 3 to 5 million years, are substantially different from each other. Additional, minor genetic differences can be found in populations occurring north and west of the Grand Canyon-Colorado River. New data on shell shapes closely parallel findings of the genetic studies. Three distinct shell shapes have been identified: a California type, a Beaver Dam Slope type, and a Sonoran Desert type. The following descriptions of tortoise populations and habitats incorporate the new information.



Map 1. The three Desert Tortoise genetic/morphometric assemblages discussed in this Rangewide Plan.

A. Sonoran Desert Populations. Sonoran Desert tortoises are very different genetically and morphologically from those to the north and west of the Colorado River. The Sonoran tortoise is generally larger, flatter, and more pear-shaped than its relatives. Populations are very limited in size, distribution, and in selection of habitats. They are found on some steep, rocky slopes of mountain ranges, primarily in Arizona Uplands vegetation dominated by palo verde and saguaro cactus. Populations are island-like and are separated from each other by valleys. The Black and Cerbat mountains of northwest Arizona are more like mountains in the Mojave Desert (creosote/bursage), with tortoises in less steep areas.

Because of the limited nature of the populations and habitat, Sonoran Desert tortoises are particularly vulnerable to human activities. Populations and habitat have been lost to expansion of urban areas and to encroachment of uses such as recreation, roads, and energy related rights-of-way. Grazing, mining, and fire also adversely affect some areas.

B. Western Mojave Desert Populations. The West Mojave Desert as defined here includes parts of the West Mojave, East Mojave, and Colorado Deserts in California and extreme southern Nevada (Map 1). Western Mojave Desert populations have high domed shells, are box-like in shape, and have plastrons of normal length.

The vast majority of all extant tortoise populations are in this unit. Within the typical geographic boundaries of the West Mojave, tortoises occur in creosote bush, alkali sink, and tree yucca habitats in valleys, on fans, and in low rolling hills at elevations ranging from 2,000 to 3,700 feet. In the Fenner and Piute valleys of eastern California and southern Nevada, creosote bush and tree yucca habitats at elevations of 2,200 to 3,500 feet are also preferred.

Tortoises living in the Colorado Desert utilize habitats of (a) creosote bush scrub with ocotillo and cactus, (b) creosote bush scrub and tree yuccas, and (c) microphyll woodland washes or wash stringers at elevations ranging from about 500 to 2,700 feet.

Status and habitat condition vary substantially from one area to another. Populations and habitat in the west Mojave area are characterized by severe and rapid rates of decline. Study plot data from eight sites indicate that populations have declined at rates of 10 percent or more per year for the last six to eight years. Vandalism, collections, raven predation, and disease are a few of the many causes for population declines.

Habitat is deteriorating and being lost from urban, energy, and mineral development, vehicle-oriented recreation, grazing, and other uses.

The population in Fenner Valley was relatively stable a few years ago but is now under pressure from raven predation and continuing livestock grazing, recreational use, and yucca harvest on private lands. In Piute Valley in Nevada, the population is in a severe state of decline. Issues there include cattle grazing, urban encroachment, recreational use, and mineral development.

In the Colorado Desert, tortoise populations were believed to be the most stable and of the highest densities in the geographic range until 1987. Since that time, study plot data from the Ward and Chemehuevi valleys indicate declines in recruitment of juveniles caused by raven predation. The Chuckwalla Valley populations are experiencing increased pressures from vandalism, and in the Chuckwalla Bench Area of Critical Environmental Concern prime populations have declined 60 percent since 1982, probably due to disease.

Problems with habitat deterioration in the Colorado Desert vary considerably from the Ward and Chemehuevi valleys to the Chuckwalla Valley and Bench. Losses are relatively minor in the Ward and Chemehuevi valleys compared with the West Mojave area, but pressure is increasing for development of more power line corridors, agricultural development, and urban development. Habitat is under greater threat of encroachment in the Chuckwalla area from agricultural and associated urban development, mining, and increased recreational use. The Chuckwalla area is particularly vulnerable because it is relatively small and the tortoise habitat within it is fragmented.

C. Eastern Mojave Desert Populations. For management purposes, the East Mojave tortoise populations are best treated by genetic rather than by the typical geographical subdivisions. The western-most boundary of the East Mojave genetic unit occurs in the vicinity of the East Mojave Scenic Area in eastern California (Shadow Valley, Ivanpah Valley, and Kelso regions). From the California border, East Mojave populations extend northeast and north into Nevada to the Las Vegas Valley and Coyote Spring Valley, and eastward to the Beaver Dam Slope and Paradise Valley of southwestern Utah and extreme northwestern Arizona.

Shell shapes of tortoises in this unit vary from a high-domed, box-like form in the Ivanpah Valley to a

substantially flatter form on the Beaver Dam Slope. Beaver Dam Slope tortoises also have a very short plastron compared with other tortoises in the geographic range and are a very distinct type.

East Mojave tortoise populations typically occur in creosote bush-burro bush or creosote bush-tree yucca vegetation types. The forage base consists of native winter and summer annuals, perennial grasses, cacti, a few half-shrubs, and some exotic introduced species.

In general, East Mojave tortoise populations and habitats are experiencing downward trends from urban development, long-term livestock grazing, mining, large-scale water development, off-highway vehicle use, collecting, and many other human-related uses. Populations have been fragmented and are in the process of becoming increasingly isolated by urban development, highway construction, and development within power line corridors.

Categorization of Tortoise Habitat Areas

Desert Tortoise Habitat Areas will be delineated by BLM District Managers (with appropriate public review) to meet the three Category Goals described in Table 1. Such categorization of habitats will assist the BLM in attaining the overall tortoise habitat management Goal established by the Director (see Introduction). That Goal is translated into more specific Goals for each of the three habitat Categories. These Category Goals will, in turn, be reached by implementing the Objectives and related Management Actions in the next section of this Rangewide Plan.

The purpose of the categorization of habitats is to provide for future protection and management of these areas and their associated desert tortoise populations. Differing levels of management, consistent with Category Goals, will be applied to Habitat Areas in each Category. The Bureau is committed to maintaining

viable tortoise populations in Category I and II habitats through implementation of the Management Actions in the next section. The placing of an area of habitat in Category III means that these areas are of lower value in sustaining viable populations of tortoises on the public lands, and thus can be subjected to lower management intensity specifically for tortoises than habitats in the other Categories.

The criteria in Table 1 provide guidelines for categorization by decision makers. They are not intended to be used as a cookbook formula. For example, some modification of the conflict resolvability criterion may be required in checkerboard or braided land ownership patterns. All conflicts may not be resolvable, but the significance of the other three criteria may clearly place the Habitat Area into Category I.

Table 1. Goals and criteria for three Categories of desert tortoise Habitat Areas. The criteria are ranked by importance to the categorization process, with Criterion 1 being the most important.

Items	Category I Habitat Areas	Category II Habitat Areas	Category III Habitat Areas
Category Goals	Maintain stable, viable populations and protect existing tortoise habitat values; increase populations, where possible.	Maintain stable, viable populations and halt further declines in tortoise habitat values.	Limit tortoise habitat and population declines to the extent possible by mitigating impacts.
Criterion 1	Habitat Area essential to maintenance of large, viable populations.	Habitat Area may be essential to maintenance of viable populations.	Habitat Area not essential to maintenance of viable populations.
Criterion 2	Conflicts resolvable.	Most conflicts resolvable.	Most conflicts not
Criterion 3	Medium to high density or low density contiguous with medium or high density.	Medium to high density or low density contiguous with medium or high density.	Low to medium density not contiguous with medium or high density.
Criterion 4	Increasing, stable, or decreasing population.	Stable or decreasing population.	Stable or decreasing population.

The criteria used to categorize tortoise habitats include the following: (1) importance of the habitat to maintaining viable populations, (2) resolvability of conflicts, (3) tortoise density, and (4) population status (stable, increasing, decreasing). Information concerning all of these criteria may not be available or relevant for all categorizations.

Note that tortoise density and population trends will often be more useful in evaluating management progress within Categories than for actual categorization of Habitat Areas. Usually, the overriding criteria for categorization will be viable population consider-

ations and conflict resolvability. The concept of resolvability includes mitigation; thus, conflicts will be judged resolvable whenever the actions required to resolve the conflicts are within the Bureau's discretion.

Where schedules permit, areas will be categorized through resource management planning. Where schedules do not permit, categorizations will be completed using existing data and will be reconsidered whenever a Resource Management Plan is prepared or revised. The results will be documented as a part of the approved plan.

Tortoise Management Objectives and Actions

Thus far this Rangewide Plan has dealt with (1) the overall Goal for tortoise habitat management on BLM-administered lands; (2) the Bureau's general strategy for implementing its tortoise program; (3) the Bureau's authorities, procedures, and policies relating to tortoise population and habitat management; and categorization of tortoise Habitat Areas. This information, along with what is in the 1987 Habitat Team report (see above), represents "where the Bureau is" with tortoise management on the public lands. The following list of Management Objectives and Actions represents "where the Bureau intends to go" during the coming decade to meet the Bureau's overall Goal for preserving and managing tortoises and their habitats.

The overall Goal is "...to manage habitat so as to ensure that viable desert tortoise populations exist on public lands. This will be accomplished through cooperative resource management aimed at protecting the species and its habitat."

Management Actions are grouped under fourteen Management Objectives. These Objectives are not listed in priority order because many things may well proceed concurrently, and the relative importance of each Objective may be different between states or between areas.

- Objective 1. Increased Awareness;
- Objective 2. Inventory and Monitoring;
- Objective 3. Cumulative Impacts;
- Objective 4. Endangered Populations;
- Objective 5. Coordination and Cooperation;
- Objective 6. Research and Studies;
- Objective 7. Management of Tortoise Habitat;
- Objective 8. Lands and Realty Actions;
- Objective 9. Off-Highway Vehicles;
- Objective 10. Livestock Use;
- Objective 11. Wild Horses and Burros;
- Objective 12. Wildlife Habitat Management;
- Objective 13. Predator Control; and
- Objective 14. Energy and Mineral Development.

This Rangewide Plan represents an element of BLM's Planning System. Final categorizations will be accomplished through the resource management planning process. Specific project proposals and other proposed uses will be subject to environmental analy-

sis as necessary to comply with NEPA and to reach informed decisions. Because environmental analysis within the planning process will bring about full consideration of the effects of actions resulting from this Rangewide Plan, an environmental assessment of this plan is not considered to be necessary.

Each Management Action relates directly to the Objective above it and should not be preformed inconsistently with the intent of that Objective. Most Management Actions also relate to Category Goals listed in Table 1. Ultimately, each Management Action and Objective relates directly to the overall Goal for tortoise management stated above. Keeping these relationships in mind will allow use of the following statements in their full, correct contexts.

The definition of the term "mitigation" as used in this document is found in the Council for Environmental Quality (CEQ) guidelines (40 CFR 1508.20):

- (a) avoiding the impact altogether by not taking a certain action or parts of an action;
- (b) minimizing impacts by limiting the degree or magnitude of the action and its implementation;
- (c) rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
- (d) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and
- (e) compensating for the impact by replacing or providing substitute resources or environments.

Objective 1 Increased Awareness

Develop increased awareness of tortoise resources on the public lands.

Management Action 1A. Develop an overall public education program concerning tortoise populations and habitats.

(1) Develop a desert tortoise public affairs plan in each state by the end of FY 1989 that includes timeframes and funding strategies for things such as items 2-4 immediately following.

(2) Prepare educational packets for distribution at agency offices and by rangers, wardens, deputy sheriffs, etc.

(3) Prepare and distribute radio and television announcements, videos, slide programs, brochures, posters, decals, stickers, etc.

(4) Change and update existing visitor use maps and brochures to include information to protect and conserve tortoises (see Management Action 1B for examples). Exclude density information and categorizations.

Management Action 1B. Increase public awareness of important tortoise issues wherever the public might congregate in the field. Signs, brochures, and other information media should deal with issues such as proper treatment of tortoises found on roads, the dangers of releasing diseased captive tortoises into the wild, the senselessness and impacts of vandalism and shooting, and the legalities of collecting tortoises for pets.

Management Action 1C. Share tortoise management expertise and data by holding workshops, developing short-term assignments for key personnel, conducting training, and providing formal information storage and transfer.

Management Action 1D. Develop an awareness in other Bureau disciplines of tortoises and their habitats, and capitalize on this increased awareness through a strong day-to-day advocacy for tortoise habitat protection and management, particularly in the BLM planning, environmental assessment, and budget processes.

Management Action 1E. Develop an interagency, intergovernmental, and public awareness of Bureau tortoise habitat Management Actions and related accomplishments through an active information and education program, a timely technical information transfer process, and other means.

Management Action 1F. Distribute this Rangewide Plan for desert tortoise management to

other tortoise habitat managers/owners within 90 days of signing, and encourage their adoption of similar Goals, Objectives, and Management Actions for the lands they administer.

Objective 2

Inventory and Monitoring

Complete and maintain on a continuing basis an inventory and monitoring program for tortoise populations and habitats to assist in making management decisions on the public lands.

Management Action 2A. Complete and maintain an inventory of tortoise populations and habitats occurring on public lands. Assign Habitat Areas to Categories according to criteria set forth elsewhere in this Rangewide Plan as soon as adequate information is available (i.e., many Habitat Areas can be categorized soon after this Rangewide Plan is approved). The target dates for completion of inventory and categorization are as follows:

California	March 1989;
Utah	March 1989;
Nevada	September 1989; and
Arizona	September 1992.

Management Action 2B. Monitor study plots to ensure acquisition of adequate information to reach the Category Goal for each Habitat Area according to prescribed schedules developed in each state during FY 1989. This should be done in each study plot at least every four or five years based on the needs and characteristics of the area being monitored.

Management Action 2C. Ensure that tortoise population and habitat monitoring and inventory are coordinated as needed among all entities gathering such information in order to avoid duplication of effort and undue disturbance to the tortoises involved.

Management Action 2D. Use tortoise population and habitat monitoring techniques and terminology (where appropriate) that will give standard data elements for input into the Bureau's land-use planning and environmental assessment processes.

(1) Develop a draft tortoise inventory and monitoring handbook by the end of FY 1988. No matter

what technique is used, data must be of sufficient quality to permit state-to-state, population-to-population, and year-to-year comparisons.

(2) Conduct a workshop in November 1988 to finalize the draft inventory and monitoring handbook for Washington Office and State Director approvals. The relationship between inventory, monitoring, and categorization of Habitat Areas should also be clarified at this workshop.

Management Action 2E. Provide training to appropriate BLM personnel on a continuing basis on available inventory and monitoring techniques for tortoise populations and habitats.

Management Action 2F. Ensure that all types of monitoring are conducted. These types include monitoring of tortoise populations, tortoise habitats, and pertinent management decisions in land-use plans, as well as compliance with relevant stipulations in records of decision and monitoring to determine the effectiveness of mitigations.

Objective 3 Cumulative Impacts

Develop and maintain a monitoring program specifically for land-use activities that adversely affect tortoise habitats. This program will be used in the analysis of and response to the cumulative impacts of land-use decisions on tortoise habitats.

Management Action 3A. Develop a system by the end of FY 1989 to track desert tortoise habitat quality and quantity through time, and report biennially (1990, 1992, 1994, etc.) on the cumulative impacts of land-use actions on desert tortoise Habitat Areas.

Management Action 3B. Determine by the end of FY 1989 the feasibility of using Geographic Information System technology as part of the Bureau's Land Information System to document the progress of land use as it affects tortoise habitat quantity and quality. This analysis should consider the costs of documenting the land uses existing as of January 1, 1990, and the possibility of reconstructing the conditions existing in 1980 and 1985.

Objective 4 Endangered Populations

Comply fully with the Endangered Species Act of 1973, as amended, as it relates to tortoise population and habitat management on the public lands.

Management Action 4A. Comply with section 2 of the Endangered Species Act which concerns management of populations and habitats of unlisted species (populations) in a manner to ensure that species do not become threatened or endangered through man's actions.

Management Action 4B. Take a leadership role in the management of officially listed populations of desert tortoises by developing and carrying out programs for their recovery.

Management Action 4C. Assign officially determined (pursuant to section 4 of the Endangered Species Act) desert tortoise Critical Habitats to Category I. Categorization of the non-Critical Habitat of listed populations will depend on application of the criteria set forth in Table 1 of this Rangewide Plan.

Objective 5 Coordination and Cooperation

Develop and maintain effective coordination and cooperation with outside agencies and Bureau constituents concerning tortoise population and habitat management.

Management Action 5A. Document in administrative reports and published papers the results of all tortoise management research/studies/monitoring and individual tortoise Management Actions to facilitate information transfer and to minimize duplication of research efforts. This should be done through annual progress reports and final reports within one year of completion of the projects.

Management Action 5B. Coordinate and provide BLM assistance (logistical, financial, volunteer man-

power, etc., as appropriate) to those conducting non-Bureau studies and research involving tortoises and their habitats on the public lands. Assisted projects must contribute to reaching the Bureau's tortoise management Goals, Objectives, and/or Management Actions.

Management Action 5C. Pursuant to Title 2 of the Sikes Act, coordinate the Bureau's tortoise population and habitat inventory, planning, management, and monitoring activities with similar activities and programs of other Federal departments and agencies and/or appropriate state and local governments.

Management Action 5D. Coordinate tortoise management efforts with county and other local planning and zoning restrictions as appropriate and to the extent allowed by Federal laws and regulations.

Management Action 5E. Participate fully on special oversight groups, technical committees, and coordination groups that deal with tortoise population and habitat issues and management opportunities.

(1) Provide for the functioning of a Desert Tortoise Management Oversight Group consisting of management-level representatives from FWS Regions 1, 2, and 6; BLM offices from each of the four involved states; the four involved state wildlife agencies; and the BLM's Washington Office. The responsibilities of this group are listed in the 1987 Habitat Team report.

(2) Assist in establishing (if necessary) and help provide for the functioning of four autonomous state-level Desert Tortoise Technical Committees. Representation should include people with special knowledge of tortoises and their habitats. One of the purposes of these Technical Committees should be to advise and put issues before BLM managers and/or the Management Oversight Group for their consideration. All such Committees should be formalized by March of 1989.

(3) Establish coordination groups to deal with specific desert tortoise issues and the overall program, with emphasis on coordination with user groups. BLM District Advisory Councils can be used to serve this purpose, if appropriate.

Objective 6

Research and Studies

Conduct research and studies sufficient to develop and document the knowledge and techniques needed to ensure the viability of tortoise populations and habitats in perpetuity.

Management Action 6A. Conduct a workshop during FY 1989 to clarify the concept of "viable population" as it relates to the desert tortoise in each of the genetically isolated populations.

Management Action 6B. Implement research and studies to answer the questions raised in Appendix 2 of the 1987 Habitat Team Report. For example, data gaps include the effects of grazing on tortoise populations and habitats, tortoise nutritional needs, acceptable levels of off-highway vehicle activity in tortoise habitat, the effects of habitat fragmentation and disturbance in general, the estimation of viable population levels, the effects of predation (ravens, coyotes, etc.) on tortoise populations, the effects of tortoise collection and subsequent release on wild populations, the long-term effects of wildfires on tortoise populations, the genetics of tortoise populations, and survivorship of relocated tortoises.

Management Action 6C. Develop a tortoise research and studies plan by the end of FY 1989. This should be done within the framework of the Management Oversight Group.

Objective 7

Management of Tortoise Habitat

Manage the public lands, on a continuing basis, to protect the scientific, ecological, and environmental quality of tortoise habitats consistent with the Category Goals and other Objectives of this Rangewide Plan. This implies management for the existence of an adequate number of healthy and vigorous tortoise populations of sufficient size and resilience to withstand the most severe environmental impacts, and with appro-

priate sex and age ratios and recruitment rates to maintain viable populations in perpetuity.

Management Action 7A. Develop a strategy document in each involved BLM state to ensure that the overall Bureau Goal for tortoise habitat management is reached through implementation of the Objectives in this Rangewide Plan. These documents shall be completed during FY 1989.

Management Action 7B. Manage tortoise habitats using an ecosystem management approach with emphasis on maintaining or restoring natural biological diversity. Document in a biennial report (1990, 1992, 1994, etc.) how this Management Action has been implemented.

Management Action 7C. Ensure adequate consideration of tortoise populations and habitats in the Bureau's land-use planning and decision-making processes, and mitigate for impacts to the extent mandated by law or appropriate under existing policy.

(1) Incorporate the Category Goals, Objectives, and Management Actions of this Rangewide Plan in new Resource Management Plans as they are developed.

(2) Where appropriate, update completed land-use plans through the amendment process to include the Category Goals, Objectives, and Management Actions of this Rangewide Plan.

Management Action 7D. Manage all desert tortoise Habitat Areas consistent with the appropriate Category Goals. This should be accomplished through the development and implementation of formal land-use plans that result in on-the-ground management actions.

Management Action 7E. Where practicable, allow no net loss in quantity or quality (vegetation composition and structure, levels of human disturbance) of Category I and II Habitat Areas. Where no reasonable alternatives to proposed actions affecting such tortoise habitats exist, losses may occur only if mitigation is not practicable. Document this through a biennial analysis of cumulative impacts (see Objective 3).

Management Action 7F. In placing tortoise Habitat Areas into Categories, consider historically used,

high potential tortoise habitats, the protection of which will assist in meeting the Objectives and Category Goals of this Rangewide Plan. Categorize such areas appropriately, and protect them, where warranted.

Management Action 7G. Identify specific and quantifiable tortoise management objectives within each categorized Habitat Area.

(1) Begin habitat planning efforts with a knowledge of existing conditions of vegetation and tortoise populations throughout the land area.

(2) Evaluate the potential of the land area to respond to management. Explore the range of habitat conditions for which it may be possible to manage. Relate these potential conditions to the habitat requirements of the tortoise.

(3) Set the tortoise management objectives for the land area. Specify the features of habitat composition and structure desired to meet the habitat requirements of the tortoise.

(4) Communicate the desired tortoise population and habitat conditions in specific and quantitative terms. Reach a decision on the specific management prescription to be used in the area.

(5) Implement the management prescription in the field.

Management Action 7H. Provide appropriate input into fire management plans to minimize the effects of wildfires on tortoise habitats.

Objective 8

Lands and Realty Actions

When the need is identified through the Bureau planning system, acquire and/or consolidate, under Bureau administration, management units with high tortoise habitat values, and mitigate the effects of issuing rights-of-way across public lands.

Retention and Acquisition of Lands

Management Action 8A. Use the Bureau's land exchange authorities as opportunities arise to consolidate tortoise habitats on the public lands, with emphasis on Category I and II tortoise Habitat Areas.

Management Action 8B. Purchase Category I and II tortoise Habitat Areas consistent with the scope and intent of Bureau planning documents.

Management Action 8C. Encourage private donations of land, funds, and services to facilitate acquisition of land with high tortoise habitat values.

Management Action 8D. Retain Category I and II tortoise Habitat Areas unless (a) it clearly is in the National public interest to dispose of them and (b) losses can be mitigated.

Rights-of-Way

Management Action 8E. Manage the issuance of rights-of-way in a manner that will minimize their effects on tortoise populations and habitats.

(1) Grant new rights-of-way through Category I and II tortoise Habitat Areas only if no reasonable alternative exists. Mitigation for habitat losses is required.

(2) Mitigate along rights-of-way to minimize direct losses of tortoises, fragmentation or reduction of habitat, and the effects of construction.

Objective 9 Off-Highway Vehicles

Ensure that off-highway vehicle use in desert tortoise habitats is consistent with the Category Goals, Objectives, and Management Actions of this Rangewide Plan.

Management Action 9A. Where necessary to achieve Category Goals, close Category I and II tortoise Habitat Areas to off-highway vehicle use. Use outside of closed areas can be allowed provided it is not inconsistent with the Category Goals and Objectives of this Rangewide Plan.

Management Action 9B. Where information is inadequate, evaluate the impacts of both existing and new off-highway vehicle uses to determine if such uses are consistent with the Goals and Objectives of this Rangewide Plan.

Management Action 9C. Minimize off-highway vehicle use in Category I and II tortoise Habitat Areas

whenever information for decision making is adequate. This may include restriction of organized and casual off-highway vehicle use to designated roads and trails, restriction of such use to existing roads and trails, placing limits and conditions on the authorization of commercial and competitive events, etc.

Objective 10 Livestock Use

Ensure that livestock use is consistent with the Category Goals, Objectives, and Management Actions of this Rangewide Plan. This may include limiting, precluding, or deferring livestock use as documented in site-specific plans.

Management Action 10A. In every grazing allotment which includes tortoise habitat, manage livestock to allow adequate and suitable native forage, space, and cover to be available to tortoises throughout the year.

Management Action 10B. Where site potential permits, manage livestock grazing to increase native perennial grasses, forbs, and shrubs that are required by tortoises.

Management Action 10C. Allow utilization of tortoise forage and cover plants by livestock only to levels which allow for long-term plant vigor and adequate standing vegetation for late summer-fall tortoise use.

Management Action 10D. Allow only those new range improvements for livestock in Category I and II Habitat Areas which will not create conflicts with tortoise populations. Mitigation for such conflicts is permissible to make the net effect of the improvements positive or neutral to desert tortoise populations. Conflicting existing improvements should be eliminated as opportunities arise.

Objective 11 Wild Horses and Burros

Provide for herd management for wild horses and burros which is consistent with the Category Goals, Objectives, and Management Actions of this Rangewide Plan. This may include limiting or precluding wild horse and/or burro use, as appropriate.

Management Action 11A. Continue to maintain appropriate management levels of wild horses and burros consistent with existing land-use plans and/or activity plans.

Management Action 11B. Ensure that appropriate monitoring of wild horse and burro herds occurs, and use such monitoring data to help develop management prescriptions for desert tortoise habitats.

Management Action 11C. Where site potential permits, manage grazing by wild horses and burros to increase native perennial grasses, forbs, and shrubs required by tortoises as food and cover.

Management Action 11D. Allow only those new range improvements for wild horses and burros in Category I and II Habitat Areas which will not create conflicts with tortoise populations. Mitigation for such conflicts is permissible to make the net effect of the improvements positive or neutral to desert tortoise populations. Conflicting existing improvements should be eliminated as opportunities arise.

Objective 12 Wildlife Habitat Management

Provide for management of wildlife other than desert tortoises on the public lands consistent with the Category Goals, Objectives, and Management Actions of this Rangewide Plan.

Management Action 12A. Manage wildlife habitat to allow adequate and suitable native forage, space, and cover to be available for desert tortoises throughout the year.

Management Action 12B. Allow the introduction or reintroduction of wildlife species into Category I and II Habitat Areas only if such actions will not create conflicts with tortoise populations.

Management Action 12C. Allow only those new range improvements for wildlife that will not create conflicts with tortoise populations. Mitigation for such conflicts is permissible to make the net effect of the improvements positive or neutral to desert tortoise populations. Conflicting existing improvements should be eliminated as opportunities arise.

Objective 13 Predator Control

Cooperate with state wildlife agencies and APHIS to effect appropriate types and levels of predator control to meet the Category Goals and Objectives of this Rangewide Plan. This will be considered only where predation is interfering with maintaining viable tortoise populations.

Management Action 13A. Where predation problems are suspected, inventory predator populations and study their food habits and behaviors to determine which categorized tortoise Habitat Areas require predator control to meet the Category Goals and Objectives of this Rangewide Plan.

Management Action 13B. Evaluate Bureau actions to determine whether or not they encourage the proliferation or range expansion of predator populations. Seek alternatives which minimize the increase and/or spread of predator populations.

Objective 14 Energy and Minerals

Manage the Bureau's energy and minerals program in a manner consistent with the Category Goals and Objectives of this Rangewide Plan.

Management Action 14A. Consider withdrawal from mineral entry for Category I tortoise Habitat Areas.

Management Action 14B. Mitigate the impacts to desert tortoise Habitat Areas from locatable mineral exploration and development to the extent possible through judicious implementation of the Bureau's 3802 and 3809 surface management regulations.

Management Action 14C. Use the Bureau's discretionary authorities relating to leasable and salable minerals to meet the Category Goals and Objectives of this Rangewide Plan.

Management Action 14D. Mitigate the impacts of energy and mineral development in tortoise habitat to the extent possible under existing laws and regulations.

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